

REMARKS

Claims 1, 3-12, and 14-22 are pending in this application. Claims 1, 3-12, and 14-22 are rejected.

Claims 2, 13, 23, and 24 have previously been canceled without prejudice or disclaimer of the subject matter contained therein.

Claims 1 and 12 are amended above.

Support for the above amendments appears throughout the originally filed specification, claims, and/or drawings. Specifically, support can be found in the first full paragraph on page 3 of the specification.

Applicant, by amending any claims herein, makes no admission as to the validity of any rejection made by the Examiner against any claim. Applicant reserves the right to reassert any of the claims canceled or the original claim scope of any claim amended herein, in a continuing application.

It is respectfully submitted that the above amendments to the claims introduce no new matter within the meaning of 35 U.S.C. §132. Accordingly, Applicant requests reconsideration and timely withdrawal of the pending rejections for the reasons discussed below.

I. Claims 1, 3-12, and 14-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Horiki (US 2002/0140667) in view of Averbuch et al. ("Averbuch", US 2003/0081836), as set forth in paragraph 4 on page 3 of the Official Action.

The Examiner asserts that "it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use a segmentation algorithm as taught by Averbuch et al. to detect the predetermined object in Horiki in order to use an algorithm that is robust, stable, and does not require any prior knowledge of the content of the input video images or sequences (See Averbuch et al., paragraph [0064])."

The Examiner further asserts that "it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to make the image analysis either history dependent or independent depending upon the design characteristics of the device." These rejections are respectfully traversed.

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741 (2007). Furthermore, even

if the prior art may be combined, there must be a reasonable expectation of success, and the reference or references, when combined, must disclose or suggest all of the claim limitations. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Horiki discloses a portable communication terminal 600, including a CCD camera 611 and a liquid crystal display 621, as shown in Fig. 6(a). The CCD camera 611 is a means of capturing movement of an operator's finger. See paragraph [0123]. The terminal 600 further includes image processor means 701, a position detecting means 702, and a control means 703, as shown in Fig. 7. See paragraph [0124].

Horiki discloses that "when an image of the forefinger 901 is captured by the CCD camera 611, the captured image is processed by the image processing means 701, and the contour of the forefinger 901 is extracted." See paragraph [0131].

Horiki further discloses that "by setting the focal length of the CCD camera 611, for example, to about 30 cm, the influence of the background on which the object is being shot can be reduced." See paragraph [0132].

Averbuch is cited in this rejection. The Examiner alleges that Averbuch discloses detecting a predetermined object in one or more images using a segmentation algorithm. As explained below, the segmentation algorithm of Averbuch is essentially different from the segmentation algorithm used in the present invention. The above proposed amendment introduces into the independent claims a definition of segmentation algorithm that differentiates the claimed subject matter from the teaching of Averbuch.

As recited in amended claim 1, the claimed subject matter uses a segmentation algorithm to detect a predetermined object in each of one or more images obtained by a camera (step bi). The segmentation algorithm used in the claimed subject matter operates on a single image, and is independent of any other images obtained by the camera. As explained on page 3 of the specification and recited in the claimed subject matter, the segmentation algorithm identifies stable sets of pixels in the image. A stable set or a cluster of stable sets is sought having geometric properties similar to those of the object being tracked. Once the object has been detected in a series of images in a video stream by this segmentation algorithm, the motion of the tracked object is determined (step bii).

In contrast, the segmentation algorithm of Averbuch partitions an image into static and moving segments (paragraphs 2 and 6). Identifying moving segments requires the comparison of at least two consecutive images in a video stream. (paragraph 7, the last two sentences before equation 1). Hence, the segmentation algorithm of Averbuch operates on two or more images simultaneously.

This segmentation algorithm of Averbuch is thus based on the assumption the object being tracked is the only object that is moving in the video stream. This assumption, however, is in general not true in a video stream obtained by a camera associated with a mobile device, where objects in the background could be moving relative to the camera as a result of movement of the mobile device. For this reason,

the segmentation algorithm of Averbuch could not be effectively used in a mobile device. Hence, there is no motivation to use the segmentation algorithm of Averbuch in the mobile device of Horiki.

Thus, nothing in Horiki and Averbuch, taken alone or in combination render the subject matter of the claims obvious within the meaning of 35 U.S.C. §103.

Accordingly, the Examiner is respectfully requested to withdraw this rejection.

CONCLUSION

Applicant believes that a full and complete response has been made to the pending Official Action, and respectfully submits that all of the stated grounds for rejection have been overcome or rendered moot. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative at the number below to expedite prosecution.

If an extension of time is necessary to prevent abandonment of this application and is not filed herewith, then such extension of time is hereby petitioned for under 37 C.F.R. §1.136(a). Any fees required for further extensions of time and any fees for the net addition of claims are hereby authorized to be charged to our Deposit Account No. 14-0112. Prompt and favorable consideration of this reply is respectfully requested.

Respectfully submitted,
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